# THE JOURNAL OF GENERAL MICROBIOLOGY

EDITED FOR
THE SOCIETY FOR GENERAL MICROBIOLOGY

#### **Editors**

J. R. POSTGATE
E. A. DAWES S. W. GLOVER M. F. MADELIN

#### Editorial Board

B. A. BRIDGES	R. KNOX	A. H. ROSE
R. J. W. BYRDE	S. P. LAPAGE	J. G. SCAIFE
M. J. CARLILE	J. W. LIGHTBOWN	J. M. SHEWAN
J.F. COLLINS	P. MEADOW	D. A. SMITH
S. T. COWAN	E. O. MORRIS	I.W.SUTHERLAND
T. CROSS	I. MORRIS	D. W. TEMPEST
N. DATTA	J. G. MORRIS	A. P. J. TRINCI
T. H. FLEWETT	M. O. MOSS	K. VICKERMAN
J. L. GAY	J. H. PEARCE	P. J. WHITE
N. G. HEATLEY	C. RATLEDGE	R. WHITTENBURY
M. T. HEYDEMAN	M. H. RICHMOND	J. F. WILKINSON
P. N. HOBSON	C. F. ROBERTS	K. S. ZINNEMANN
A. J. HOLDING	J. A. ROPER	

**VOLUME 67, 1971** 

CAMBRIDGE
AT THE UNIVERSITY PRESS
1971

## PUBLISHED BY THE CAMBRIDGE UNIVERSITY PRESS Bentley House, 200 Euston Road, London NW I 2DB American Branch: 32 East 57th Street, New York, N.Y. 10022

### Contents

Part 1 issued July 1971	PAGE
Sense and Nonsense in Bacterial Taxonomy. By S. T. Cowan	I
	1
Bacillus acidocaldarius sp.nov., an Acidophilic Thermophilic Spore-forming Bacterium. By G. Darland and T. D. Brock	9
The Physiological Ecology of <i>Cyanidium caldarium</i> . By W. N. Doemel and T. D. Brock	17
Taxonomy of the Clostridia: Wall Composition and DNA Homologies in <i>Clostridium butyricum</i> and Other Butyric Acid-producing Clostridia. By C. S. CUMMINS and J. L. JOHNSON	33
The Amino Acid-fermenting Clostridia. By G. C. MEAD	47
Thermally-induced Explosive Migration of Paramecium. By C. AYLMER and A. H,	
Reisner	57
Effect of γ-Radiation on the Donor Ability of recA and recA <sup>+</sup> Strains of Escherichia coli. By M. H. L. Green, B. A. Bridges and S. Riazuddin	63
Nutritional Requirements of Streptococcus salivarius. By J. CARLSSON	69
Influence of Oxygen Concentration on the Colony Type of <i>Derxia gummosa</i> Grown	
on Nitrogen-free Media. By S. HILL	77
Immunological Comparisons of Histidinol Dehydrogenases, By E. H. Creaser and R. Varela-Torres	85
Citrobacter freundii Mutants Deficient in Host Specificity Functions and Their	03
Recipient Ability for Foreign Deoxyribonucleic Acid. By J. DE GRAAF and	
A. H. STOUTHAMER	91
Bicarbonate Fixation by Cell-free Extracts and by Mycelium of <i>Neocosmospora</i> vasinfecta. By K. BUDD	99
A Temperature-sensitive Cell Division Component in a Mutant of Salmonella	
typhimurium. By N. Ahmed and R. J. Rowbury	107
Some Properties of the Naphthalene Oxygenase from <i>Pseudomonas</i> sp. NCIB 9816.  By F. A. CATTERALL and P. A. WILLIAMS	117
by 11th Children and 11th Williams	4
D . 2	
Part 2 issued August 1971	
An Autoradiographic Study of Hyphal Growth of Some Fungi. By G. W. GOODAY	125
The Structure and Occurrence of Pili (Fimbriae) on <i>Pseudomonas aeruginosa</i> . By R. L. Weiss	135
Physiological and Chemical Properties of a Reductant-activated Inorganic Pyrophosphatase from <i>Desulfovibrio desulfuricans</i> . By D. A. WARE and J. R.	
POSTGATE	145

iv Contents

	PAGE
Sedimentation Characteristics of Mitochondria, Peroxisomes and Lysosomes from the Ciliate Protozoon <i>Tetrahymena pyriformis</i> Strain ST after Chloramphenicolinhibited Growth. By R. K. Poole, W. G. Nicholl, G. Turner, G. I. Roach	
and D. Lloyd	161
The Effect of Chloramphenicol on Growth and Mitochondrial Function of the Ciliate Protozoon Tetrahymena pyriformis strain st. By G. Turner and D.	
LLOYD	175
Regulation of Aspartokinase in Azotobacter Species. By M. Robert-Gero, J. M. Sala-Trepat and L. Le Borgne	189
Assay of Fungal Mycelium in Grains of Barley, including the Use of the Fluorescent Antibody Technique for Individual Fungal Species. By D. W. WARNOCK	197
Conidium Ontogeny in Penicillium. By J. FLETCHER	207
Germination of Spores of <i>Clostridium bifermentans</i> by Certain Amino Acids, Lactate and Pyruvate in the Presence of Sodium or Potassium Ions. By W. M. WAITES	1
and L. R. WYATT	215
Numerical Taxonomy of Various Genera of Yeasts. By I. CAMPBELL	223
Torulopsis fragaria species nova, a Yeast from Fruit. By J. A. BARNETT and R. W. M.	
Buhagiar	233
SHORT COMMUNICATIONS	
Product Induction in the Degradation of Pantothenate in Pseudomonas fluorescens	
P-2. By P. Mäntsälä	239
Threonine Metabolism via Two-carbon Compounds by <i>Pseudomonas oxalaticus</i> . By M. A. BLACKMORE and J. M. TURNER	243
Segregants from a Heterozygous Diploid of <i>Penicillium chrysogenum</i> Following Different Physical and Chemical Treatments. By K. D. MACDONALD	247
A Serological Comparison of the Membrane Teichoic Acids from Lactobacilli of Different Serological Groups. By A. J. WICKEN and K. W. KNOX	251
	-3-
Part 3 issued August 1971	
An Examination of the Production of Hydrolytic Enzymes and Toxins by Pathogenic Strains of <i>Candida albicans</i> . By F. W. Chattaway, F. C. Odds and A. J. E. Barlow	
	255
The Ferredoxin-dependent Reduction of Chloramphenicol by Clostridium aceto-butylicum. By R. W. O'BRIEN and J. G. MORRIS	265
Serology of Rumen Bacteroides. By M. E. SHARPE	273
Isolation and Characterization of <i>Escherichia coli</i> bacteriophage Ω8 specific for <i>E. coli</i> strains belonging to sero-group O8. By K. JANN, G. SCHMIDT, B.	
Wallenfels and E. Freund-Mölbert	289
The Differential Effects of Nystatin on Growth of Auxotrophic and Prototrophic Strains of Aspergillus nidulans. By P. DITCHBURN and K. D. MACDONALD .	299

Contents PAGE Drug Resistant Mutants and Appearance of Heterozygotes in the Cellular Slime Mould Dictvostelium discoideum, By Y. FUKUI and I. TAKEUCHI 307 The Relationship between Prodigiosin Biosynthesis and Cyclic Depsipertides in Serratia marcescens, By M. A. C. BERMINGHAM, B. S. DEOL and J. L. STILL 319 Influence of the Width of the Peripheral Growth Zone on the Radial Growth Rate of Fungal Colonies on Solid Media, By A. P. J. TRINCI 325 Exponential Growth of the Germ Tubes of Fungal Spores, By A. P. J. TRINCI 345 The Rapid Detection and Determination of Sparse Bacterial Populations with Radioactively Labelled Homologous Antibodies By R F STRANGE F O

POWELL and T. W. PEARCE	349
SHORT COMMUNICATIONS	
Effect of Dilution Rate on the Outcome of Chemostat Mixed Culture Experiments.	
By J. L. Meers	359
Observations on the Arthritogenic Properties of Sabin's Type C Murine Mycoplasma (Mycoplasma histotropicum). By P. C. T. HANNAN	363
	303
Cellulase Induction During Standardized Vegetative Growth in Achlya. By C. O. WARREN and B. H. SELLS	367
Mutational Resistance to Fungitoxic Benzimidazole Derivatives in Aspergillus	
nidulans. By A. C. HASTIE and S. G. GEORGOPOULOS	371

Growth and Pigmentation of Sarcina aurantiaca at Various Temperatures, By D. THIRKELL and E. M. GRAY 375

Microbial Metabolism of Amino Alcohols via Aldehydes. By A. Jones and J. M. TURNER . 379

Books Received 383

